REMARKS

Claims 1-5 are pending in this application.

Claims 1, 3, and 5 are independent.

Claims 1 and 3 are cancelled herein.

Claims 2, 4, and 5 are amended herein. Claims 2 and 4 are amended to be in independent form, including, respectively, the limitations of now cancelled independent claims 1 and 3

Claims 6-19 are added herein. No new matter is added.

Substitute Figures 1 and 2 are submitted herewith, in accordance with the Examiner's suggestion. More particularly, a "prior art" label has been added to each of Figures 1 and 2. No new matter has been added. The Examiner's approval of the changes is respectfully requested.

The specification is amended herein in accordance with the Examiner's suggestion. More particularly, "$100x10^{-9}$ mm" has been changed to "$100X10^{-6}$ mm" in line 20 of page 5. No new matter has been added.

Claims 2 and 4 stand rejected as under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim subject matter. Claims 2 and 4 have been amended to address the Examiner's noted concerns. In particular, the inadvertently recited "$100x10^{-9}$ mm" has been changed to "$100X10^{-6}$ mm". Also, the claims have been amended to more clearly recite that **at least one** of the metal oxide fine particle sol and the silicon oxide file particle sol are required. Neither claim 2 nor claim 4 require **both** the metal oxide fine particle sol and the silicon oxide fine particle sol.

Claims 1-4 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 4,760,296 to Johnston et al., hereafter referred to as Johnston. Claims 1-5 stand rejected under 35 U.S.C. §102(b) as anticipated by U.S. Patent No. 5,861,578 to Hake et al., hereafter referred to as Hake. Also, claim 5 stands rejected under 35 U.S.C §103(a) as obvious over Johnston in view of Hake. To the extent not addressed by the amendments, the rejections are respectfully traversed.

As disclosed in the present application, a metal oxide fine particle sol or a silicon oxide fine particle sol is a transparent or opalescent colloid liquid containing a metal oxide fine particle or silicon oxide fine particle, respectively, having an average particle size of 100 nm ($100x10^{-6}$ mm) or less in a dispersing medium having excellent compatibility with a wire enamel composition. The use of a dispersing medium having such compatibility prevents the metal oxide or silicon oxide fine particles from massing together in the enamel composition, i.e., the particles do not agglomerate, but rather are uniformly dispersed.

Utilizing the metal oxide fine particle sol and/or the silicon oxide fine particle sol, a partial discharge-resistant wire enamel and partial discharge-resistant wires are provided which overcome problems with prior art wire enamels and wires. In particular, among other advantages, flexibility and adhesiveness of organic/inorganic composite material, as well as v-t (partial discharge-resistance) during extension, are improved. The improvements are achieved due to the uniform dispersion at the nano-level of the metal oxide and/or the silicon oxide fine particles. Because of the uniform dispersion at the nano-level, a single corona-resistant metal or silicon sol-dispersed wire enamel coating can be utilized with a conductor. In the prior art, as shown in Figures 1 and 2, at least a polyamideimide over coating, if not also a polyamideimide under coating, is required to be utilized along with an

insulation layer to overcome the problems associated with the prior art.

The Johnston reference discloses a wire having a corona-resistant resin-based insulation. The insulation of Johnston is a polymeric resin containing an additive. The resin is one of a polyimide, polyamide, polyester, or glycidyl ether of polyphenol epoxy resin. The additive is one of: organoaluminate compounds, organosilicate compounds, silica of submicron sized particles, and alumina of submicron sized particles. (See claim 1)

The Examiner argues that the resin-based insulation of the Johnston reference is a fine particles sol. In particular, the Examiner points to column 3, lines 50-60, and column 6, lines 40-45, and argues that disclosure of uniform dispersion of particles of a size preferably less than 0.1 microns through the resin of the polymeric material discloses a fine particles sol. Further, the Examiner argues, relying upon the disclosure at column 3, lines 35-60, that the composition disclosed in Johnston is a colloid liquid.

It is respectfully submitted that that Johnston does not teach, nor even suggest, a fine particle sol, let alone a colloid liquid, as required by the present claims. Johnston simply does not disclose either. Contrary to the Examiner's arguments, the mere fact that submicron sized particles are dispersed into polymeric material does not result in a colloid liquid. To obtain a colloid liquid, as required by the present claims, after dispersing submicron sized particles into a polymeric material it is necessary to somehow prevent the submicron sized particles from agglomerating. Johnston does not teach or suggest such. Thus, for example, while silica or alumina might be obtained by hydrolyzing organosilicate or organoaluminate, respectively, in the polymeric material of Johnston under certain conditions, this is not the same as utilizing, for example, a silicia or alumina sol. The results of such a hydrolyzing would not result in the presently claimed invention.

The Hake reference discloses an electrical conductor coated with a corona-resistant, multi-layer insulation system comprising, first, second, and third insulation layers. The second layer is sandwiched between the first and third layers and comprises 10 to 50 parts by weight of aluminia particles dispersed in 100 parts by weight of a polymeric binder.

Similar to the discussion above regarding Johnston, even if fine alumina particles are dispersed in a polymeric binder, the resulting mixture does not become a colloid liquid. To obtain a colloid liquid, it is necessary to prevent an agglomeration of the fine alumina particles in the resulting mixture. Hake simply does not address this, and thus cannot teach, or even suggest, the present invention.

Further, with reference to Figure 2 of Hake, the corona-resistant layer (the second layer (18)) is not directly provided on a conductor 14. Rather, first layer 16 is positioned between the two. First layer 16 is, with reference to column 3, lines 27-42, utilized to prevent cracking of the inflexible corona-resistant layer 18. Thus, Hake utilizes a solution to a problem (the cracking) solved by the present invention that is completely different than the solution of the present invention. In fact, the deficiencies of Hake's solution (use of first layer 16) are discussed in detail in the present application (see page 3, third full paragraph). Thus, for this reason also, there is no way for Hake to teach, or even suggest, the present invention.

As should be understood from the above, both the Johnston and the Hake references fail to teach or suggest explicitly claimed features of the present invention. Accordingly, the present invention is not anticipated by the applied references, nor would it have been obvious to modify either of the Johnston or Hake references to arrive at the present claims.

In view of the above, it is respectfully requested that the Examiner reconsider and withdraw the rejections of pending claims 2, 4, and 5.

New claims 6-19 have been added to recite the present invention somewhat differently. As should be understood from the above, the new claims are neither anticipated by, nor obvious in view of, the applied art.

In view of the foregoing, it is respectfully submitted that the application is in condition for allowance and an early indication of the same is courteously solicited. The Examiner is respectfully requested to contact the undersigned by telephone at the below listed local telephone number, in order to expedite resolution of any remaining issues and further to expedite passage of the application to issue, if any further comments, questions or suggestions arise in connection with the application.

A petition for an extension of time under 37 C.F.R. 1.136 is hereby made. Please charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account 01-2135 and please credit any excess fees to such deposit account.

Respectfully submitted,
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SWC

FIG. 1 PRIOR ART

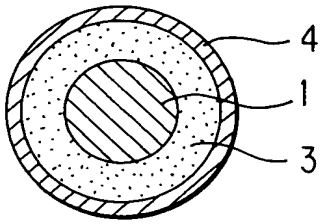

FIG. 2 PRIOR ART

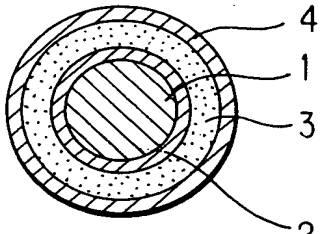

FIG. 3

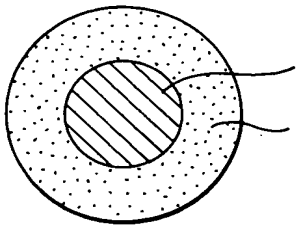

FIG. 4